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United States Patent [19]**Tiedemann, Jr.**[11] **Patent Number:** **5,604,730**[45] **Date of Patent:** **Feb. 18, 1997**[54] **REMOTE TRANSMITTER POWER CONTROL IN A CONTENTION BASED MULTIPLE ACCESS SYSTEM**[75] Inventor: **Edward G. Tiedemann, Jr.**, San Diego, Calif.[73] Assignee: **QUALCOMM Incorporated**, San Diego, Calif.[21] Appl. No.: **280,095**[22] Filed: **Jul. 25, 1994**[51] Int. Cl.⁶ **H04J 3/14**[52] U.S. Cl. **370/252; 455/69; 370/335**

[58] Field of Search 370/18, 13, 17, 370/95.1, 95.2, 95.3, 110.1, 77; 455/38.3, 69, 70, 92, 68, 95; 375/200, 205, 206, 208; 340/825.08

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The power control process of the present invention enables a base station communicating over a forward packet channel to a mobile radio to control the power of the mobile radio transmitting over a reverse packet channel to the base station. The base station maintains a maximum energy per bit to total interference spectral density ratio threshold for the reverse channel as well as a desired threshold that results in a low frame error rate. By comparing each radiotelephone's estimated energy per bit to total interference spectral density ratio to the desired and maximum thresholds, power control commands to increase or decrease the radiotelephone's transmit power are generated depending on the outcome of the comparison.

29 Claims, 10 Drawing Sheets